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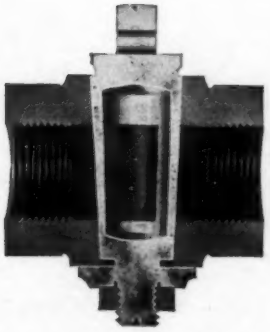
Lattimer-Stevens Iron Body Stop Cocks

Several reasons why some of the largest gas companies specify L-S stop cocks



Cross Section L-S Stop Cock, Showing Heavy Construction

1. Highest grade grey iron body.
2. Red (not yellow) brass key
3. Faced washers
4. Drilled (not cored) lock wing hole
5. Body faced between key centers (prevents binding)
6. Double flat washer
7. Accurate machining
8. Tested by heavy air pressure under water

Sizes ¾ in. x ½ in., ¾ in., 1 in., 1¼ in., 1½ in., 2 in.

Samples and Prices on Request

The Lattimer-Stevens Company

Company Member American Gas Association

72 Yale Avenue **Columbus, Ohio**

New England Representative:
The Eastern Service Co.,
Boston

New York Representative:
Mulcare Engineering Co.
100 Park Place, New York

Pacific Coast Representatives:
Will W. Barnes, Los Angeles
A. P. Bartley, San Francisco

Index to Contents, Page 4 Advertising Index, page 37.

Made by Men with "Gas" Experience

When you install a Columbia Gas Maker's Gauge you not only get an instrument that is perfect from the instrument-maker's standpoint, but one that is thoroughly practical from the standpoint of the gas maker.

Columbia Gauges meet the requirements of the modern gas works perfectly because experienced "gas" men had a voice in their design.

Knowing just what a gas gauge is up against, these gas experts, co-operating with our instrument makers, planned a gauge that would withstand the destructive influences which quickly put the ordinary gas plant gauge out of business.

The Columbia Gas Maker's Gauge is a rugged, practical, time-defying instrument—and that is the only kind of a gauge you can afford to install. We guarantee it to be immune to corrosion. We also guarantee that it will indicate with accuracy your highest as well as lowest pressure.

Furnished in two sizes, 6- or 12-inch dial, graduated in inches head of water or mercury.

Write for Booklet P-56.

American Schaeffer & Budenberg Corporation

Succeeding
THE SCHAEFFER & BUDENBERG MFG. CO.
AMERICAN STEAM GAUGE & VALVE MFG. CO.
HOHMANN-NELSON COMPANY
Brooklyn, N. Y.

*Boston Buffalo *Chicago Cleveland Detroit Tulsa
*Los Angeles *Pittsburgh Philadelphia Salt Lake City Seattle
* Stocks carried at these branches.

Columbia Gas-Makers' Gauge

American S & B Pressure Gauge
"Reform" Dial Thermometer
S & B Engine Register
Columbia Recording Gauge
American H₂O Grease Extracting Feed Water Filter
American Water Relief and Pop Safety Valves
"Redline" Differential Draft Gauge
Columbia Recording Thermometer
Crescent Thermometer U Gauge
Honeco Temperature Controller
American Thompson Improved Indicator
American Gauge Tester

AMERICAN
GAS JOURNAL

Vol. 121. No. 5 NEW YORK, AUGUST 2, 1924 Whole No. 3473

How Home Service Increases Gas Sales

The methods used in "Putting Home Service Across"

P. D. Warren

The People's Gas Light & Coke Co., Chicago

IF YOU knew your wife had a tempting dinner ready for you with juicy, tender meat, flavorful vegetables, crispy fresh salad and your favorite pie for dessert, would you be apt to 'phone her and say you were staying down town to dinner? Of course not, and neither does Bill Jones since his wife has given up tin cans and delicatessen mixtures for the dinner menus and recipes which she gets from the Home Service Department. She finds cooking easy and Bill declares it delicious.

That means that the People's Gas Light & Coke Company of Chicago is selling more gas to the Joneses than before, and there are several hundred thousand families just like them in the city of Chicago who are reached by the gospel of home cooking from the Home Service Department.

In the January 5th issue of this magazine the organization of the Home Service Department, which stimulates this interest in home cooking, was described in full. Since then a good many men interested in the possibilities which such a department offers for increasing gas sales have asked the question, "How do you get the message of the department across to the housewives?" and "How do you know you are increasing gas sales?"

Ways of Advertising the Department

Every gas company has access to a means of direct advertising to the housewife which few other companies have, that is, by printing a message on the front of the gas bill, setting it off with type to catch the attention and making it interesting enough to introduce the service, details of which are described on the back of the bill. The big message is "Home Cooking."

On the back of the gas bill the program of free lecture-demonstrations is announced, with details of just what makes each program distinctive. The radio talks, the 'phone service, the mail service and the location of the neighborhood stores, offering the same demonstration program, are given here.

The Gas Gazette

With the gas bill each month is mailed the Gas Gazette, one page of which is devoted to the activities of the Home Service Department. Two seasonable recipes are given, and our advertising man tells us that the Gazettes are folded so that the recipes are the first thing to strike the eye of the housewife. He declares this is a good bait for her interest, to open, read the Gazette, and make use of it. Here again the program of lecture-demonstrations is announced and often a picture of some special activity of the department is reproduced.

A special monthly service is usually offered so that the housewives may feel that any of their home-making problems will receive help from Home Service. This gains their confidence and interest and makes them all the more willing to try all of the recipes which are offered. For instance, the January Gazette carries a little notice about the willingness to help with the making of budgets for the new year. In April, housecleaning is before every woman. What more natural thing than for the Home Service to help her make housecleaning easy with plans for work and definite instructions for cleaning?

Colored Recipe Cards

One of the most attractive ways of advertising has been by means of colored recipe cards enclosed with the bill each month. These recipe cards are reproduced by the four-color process on three by five-inch cards with enameled finish. The foods pictured

on them are prepared by our director, Mrs. Peterson, and the original paintings are made by one of the most famous commercial artists in the country. They really look good enough to eat and the housewife is tempted to make a lemon cream pie, a baked ham, or whatever it may be, even though she has never tried it before. The directions and method are definite and accurate and she knows just how it should look from the picture.

Often a customer will come in to the booth in the center of the main floor and ask for details of the program and what the service offers. An attractive folder, giving the activities of the department with three or four seasonable recipes on the back is given to them. This also makes very helpful advertising when handed out at the neighborhood stores.

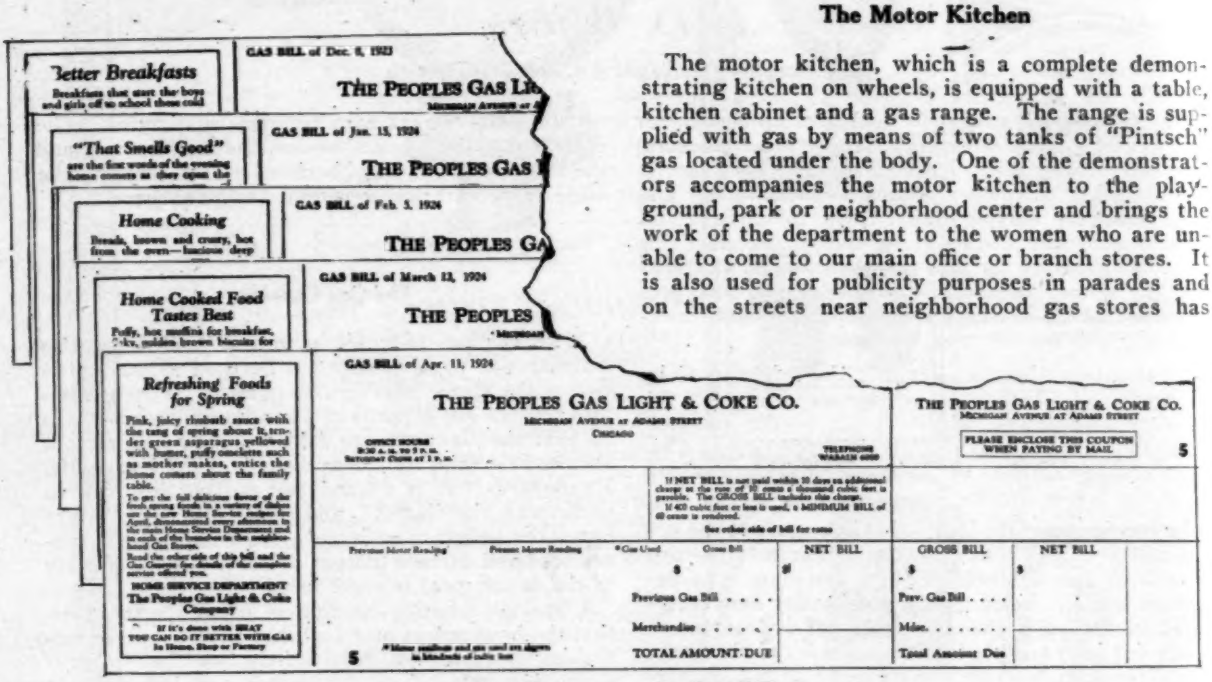
The Radio Talk

The daily radio food talk has been one of the greatest means of publicity which we have had. In a morning newspaper each day appears an announcement of these talks. The twenty minutes given to this feature each day afford an opportunity for offering menus and recipes with an announcement of the day's lecture—demonstration in the Home Service Department of the People's Gas Light & Coke Company.

Through lectures before women's clubs—a free service offered to all Chicago organizations—interest in the department is aroused; lesson sheets from the files of the Home Service are distributed and general discussion of home problems brings many new faces into our audiences.

The Motor Kitchen

The motor kitchen, which is a complete demonstrating kitchen on wheels, is equipped with a table, kitchen cabinet and a gas range. The range is supplied with gas by means of two tanks of "Pintsch" gas located under the body. One of the demonstrators accompanies the motor kitchen to the playground, park or neighborhood center and brings the work of the department to the women who are unable to come to our main office or branch stores. It is also used for publicity purposes in parades and on the streets near neighborhood gas stores has served to introduce the new Home Service Department in these gas stores directly by reaching the passerby.


Better Breakfasts
GAS BILL of Dec. 8, 1923
"That Smells Good"
GAS BILL of Jan. 15, 1924
Home Cooking
GAS BILL of Feb. 5, 1924
Home Cooked Food Tastes Best
GAS BILL of March 13, 1924
Refreshing Foods for Spring
HOME SERVICE DEPARTMENT
The Peoples Gas Light & Coke Company
GAS BILL of Apr. 11, 1924
THE PEOPLES GAS LIGHT & COKE CO.
MICHIGAN AVENUE AT ADAMS STREET
CHICAGO
OFFICE HOURS
TELEPHONE WABASH 6000
If NET BILL is not paid within 10 days an additional charge at the rate of 10 cents a thousand cubic feet is payable. The GROSS BILL includes this charge.
If 400 cubic feet or less is used, a MINIMUM BILL of 60 cents is rendered.
See other side of bill for rates
Previous Meter Reading
Present Meter Reading
*Gas Used
Gross Bill
NET BILL
Previous Gas Bill
Merchandise
TOTAL AMOUNT DUE
*Meter readings and gas used are shown in hundreds of cubic feet
THE PEOPLES GAS LIGHT & COKE CO.
MICHIGAN AVENUE AT ADAMS STREET
PLEASE ENCLOSE THIS COUPON WHEN PAYING BY MAIL
GROSS BILL
NET BILL
Prev. Gas Bill
Mdse.
Total Amount Due

The Recipes on the Gas Bill

Pure Food Department in Daily Papers

For two years a Pure Food Department has been conducted weekly in one of the metropolitan newspapers by the different members of the Home Service staff, in return for which the newspaper publishes small news items of the activities of the department, announcing special afternoon lecture-demonstrations and the daily radio food talk. Various neighborhood newspapers are very glad to get recipes and articles about food, giving in return announcements and items concerning our work.

How We Know Home Service Is Getting Across

Out of the five lecture-demonstrations given weekly in the main Home Service Department and at the three branch stores one of them is a registered class, where cards with the name and address of the members are issued. This is known as the certificate class and consists of a series of twelve lessons in cooking, covering everything from soup to dessert.

(Continued on page 715)

Some Valuable Data Regarding An Important Property of Coke

The reactivity of coke controlling conditions

Karl Bune and W. Fitz

The article which follows has been translated especially for the American Gas Journal from the original German which appeared in Das Gas und Wasserfach. In it is contained valuable information obtained under the direction of the well known German Gas Chemist and Engineer, Dr. Bunte, on a property of coke, which is becoming more and more important every day.

Coke is being used for various purposes for absorption of vapors and gases. The relation between conditions controlling the manufacture of coke during gasification of coal and the ability of the product to absorb gases and vapors, is naturally of considerable importance. Valuable information on this particular subject is contained in this article, which makes it of decided interest to American gas men.

VARIOUS properties of the coke may be assumed to be the cause of the variation in the reactivity of this product of gasification of coal. Furthermore, it is not excluded that a number of factors act simultaneously in this matter. After satisfactory methods have been worked out for the measurement of the degree of activity, the most important task remains to evolve a clear, concise and explict explanaton of the phenomena that are involved and it is also necessary to define and accurately determine those properties of the product as well as the general conditions of the process of gasification which play the most important role in this important technical process. The practical application of the information is available on the variation in the degree of reactivity of the coke, in other words, the establishment of means for deliberately and directly influencing the degree of reactivity that is obtained, are dependent on the accuracy of this explanation.

Three Principal Causes

There are three principal causes of the change in the reactivity of coke which have hitherto been suspected of playing essential roles in the process. These are as follows:

1. The percentage of volatile matter in the coke.
2. The fineness of the coke structure.
3. The influence of inorganic constituents.

The first two conditions must undergo any change to which they are subject during the course of the gasification process. The third condition is dependent on the nature of the ash in the original coal, the quantity of the same and the reactions which can and do take place between the ash and the coke itself (hence on the temperature). This factor can be regulated to a certain degree by the addition of other substances.

The investigations of which this is a report have been concerned with the problem of determining the influence of the degree of gasification and the fineness of the coke structure on the degree of reactivity of coke.

The Influence of Degree of Gasification

It has been observed in several instances that a semi-coke, which is heated to high temperatures, will attain a higher ignition temperature. The authors made this experiment and were convinced thereby that such was actually the case. The ignition temperature of the semi-coke was determined in accordance with the method devised by Bunte and Koelmel (see Das Gas und Wasserfack, 1922, page 593). A semi-coke obtained from a gas coal at a temperature of 550 to 650 degrees C was tested in this manner. Then this semi-coke was heated to a temperature of 1100 degrees C in a stream of nitrogen gas for a period of one hour. The ignition temperature of the coke was again determined. The results obtained are given in the following tabulation:

	mm.	mm.	
Size of the coke particles..	0.5 to 1	1 to 3	3 to 5 mm.
Ignition temperature of the semi-coke	328	350	397 deg. C.
Ignition temperature of the semi-coke after heating	483	508	532 deg. C.

It is thus quite evident that the heating of the semi-coke in the manner explained has a considerable effect on the ignition temperature. There have been various opinions held on this subject, some of which, derived from experimentation, do not agree with these conclusive results. It has been stated that when the sample of coke is heated to incandescence only for a moment, there is no change in the combustibility of the product, but that when the same sample is heated for a prolonged period of time to a high temperature in the absence of air, due to the fact that a part or the entirety of the coke is changed into a graphite, a process which is eminently dependent on the time of the heating process, the reactivity or absorptive capacity of the coke is materially reduced.

Results of the After-Heating of the Coke

It is therefore undoubtedly correct to conclude that in general the after-heating of the coke results in a lowering of its degree of reactivity, due to the fact that graphite is formed, which is known to be inert in respect to absorption capacity. It is also evident that the reactivity of the semi-coke has not

been reduced to such point by the after-heating treatment nor the ignition temperature of the same increased so much that the characteristics of metallurgical coke are attained. As is known, the latter variety of coke has an ignition temperature in the negihborhood of 600 degrees C.

The Volatile Ingredients of the Coke

The first matter that was investigated was the effect of the amount of volatile matter in the coke. It is evident that only that part of the volatile ingredients of the coke can be of any importance in this respect, which is volatile at the ignition temperature. Accordingly semi-coke and coke which had been subjected to heat treatment were heated in an electric furnace to a temperature of 40 degrees C. This temperature was on the one hand greater than the ignition temperature of the semi-coke (328 degrees C.) and on the other hand less than the ignition temperature of the coke which had been subjected to one hour's heat treatment. (483 degrees C.)

The volatile constituents of both samples of coke were driven off and carried out of the apparatus in a stream of inert, nitrogen gas which had first been most scrupulously purified. The percentage of the volatile matter was determined. Inasmuch as free hydrogen is not driven off at the temperature, 450 degrees C. (this fact has been proven by many investigators), and as small amounts of water adhere stubbornly to the coke through its absorption by the latter and are yielded by the coke only after a prolonged period of heating at comparatively high temperatures, a fact which, of course, gives rise to the fear that the desired results might be erroneous, it must be emphasized that these results must be considered as applying only to the particular coke samples that are herein described. Combustion of the coke over copper oxide gave the following results:

Carbon	Semi-coke a	Semi-coke b	Heat-treated semi-coke
Calculated as hydrocarbons of the methane series	0.41	0.49	0.03
Calculated as phenol bodies..... ($C_6H_4CH_3OH$)	0.42	0.51	0.03

Interpretation of Results

Just as was expected, the results show that there is a difference between the percentages of volatile matter in the semi-coke and in the heat treated semi-coke. However, the percentage of volatile ingredients is very small in the case of semi-coke which has been heated in excess of its ignition temperature. Hence it is hardly probable that the quantity of volatile ingredients which were derived from the coke ,after being heated for hours long in a stream of pure nitrogen gas at a temperature of 450 degrees C., can properly be considered as the cause of lower ignition point of the coke at a temperature of 328 degrees C., and especially of the constant higher degree of reactivity of the coke.

Substantiation of these conclusions were obtained in the following manner: The samples of semi-coke were heated in a boiling sulphur bath, temperature 444.5 degrees C., for twelve hours long under a high vacuum. The heating was continued until no more gas was evolved by the coke, which was taken as that point at which a contact vacuum was maintained within the heating flask for a period of thirty minutes while heating was going on and with the vacuum pump disconnected.

The ignition temperatures of the coke before and after degasification was found to be 397 and 402 degrees, respectively.

Change in Specific Gravity and Hardness

The after heating of the coke in a current of nitrogen gas has significant effect on the structure of the coke. One result is a not inconsiderable increase in the specific gravity of the semi-coke, viz. from 1.493 to 1.787. The hardness likewise increases, from 3 to 4 on the standard hardness scale. A compression of the internal structure of the coke has undoubtedly taken place.

Absorption Capacity as a Measure of the Fineness of the Coke Structure

It has been the general conclusion of most investigators that the fineness of the structure of the coke has an important bearing on the degree of reactivity. There has been much confusion in terms in this respect, some writers confounding porosity and structure.

Hence in order to be able to define accurately the term, fineness of structure and likewise measure the same in definitely fixed units, as well as to arrive at clear conclusions regarding the relationship between this property of the coke and its reactivity and ignition temperature, it is necessary to establish the fact that porosity is not the same as this property. Porosity of coke is the relative volume of the air space within the coke structure; in other words, the relation between the air space and the total volume of the coke. It must, therefore, be clear that a coke, which possesses many small cells with thin walls, can have the same degree of porosity as one which possesses a few large cells with thick walls. The fineness of the structure of the coke applies to the relation between the surface area and mass of the coke; in other words, it may be called the relative surface area of the pores of the substance.

It was necessary to find a method for measuring this property of coke. A specific property of surfaces is their absorptive capacity. This property, although it is dependent to a certain degree on the inherent character of the substance, nevertheless, in the case of substances which are fundamentally alike, as may be assumed in the examination and study of the different varieties of coke, this characteristic of surfaces may be used as a measure of the total surface area. The absorptive capacity towards gases, which is exhibited by a certain weight of coke, must therefore yield certain conclusions regarding the ratio of the mass of material to surface area. In

(Continued on page 713)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 31

Expansion Effect of Heat (continued)

Volumetric Expansion and the Expansion of Liquids

While the linear expansion of solids, particularly metals, is a matter of prime importance, there is also another element which enters into the study of this effect of heat which must now command our attention. That is the volumetric or cubic expansion of solids.

The following formula states in algebraic terms the law of the cubic expansion of solids:

$V_t = V_o (1 + a_v t)$.

In this formula, V_t is the volume of the solid at the higher temperature; V_o is the volume of the solid at the lower temperature, t is the difference between the temperatures—the temperature differential—and a_v is the coefficient of cubical expansion.

Relation Between Linear and Cubical Expansion

The relation between linear and cubical expansion can be easily seen from the followng study. Consider a figure which is made up of parellel faces, as, for example, a cube of the metal, iron. The cubical contents of this cube of iron will be found by multiplying together the three dimensions, length, width and thickness. The length may be denoted by the symbol L, the width by the symbol W and the thickness by the symbol H. Then V_o or the volume at the lower temperature is equal to LWH, and if each of these dimensions is given in feet the volume will be expressed in cubic feet.

The solid is heated and is subjected to a change in temperature denoted by the temperature differential t. This means that each one of the dimensions, which may in turn be considered the same as length, is increased according to the following equations:

$L_t = L (1 + a_1 t)$ $W_t = W (1 + a_1 t)$ $H_t = H (1 + a_1 t)$.

Boxes once rigged this way may be handled readily by turning on steam from 15 to 30 minutes before it is desired to raise a cover. Gas has no appreciable effect on the paraffine, nor vice versa. Evaporation is practically nothing and the wax lasts a great while. It is clean, safe and sure, and also tends to the preservation of the sides of the purifier lids, usually the first place to give out when used with water seals.

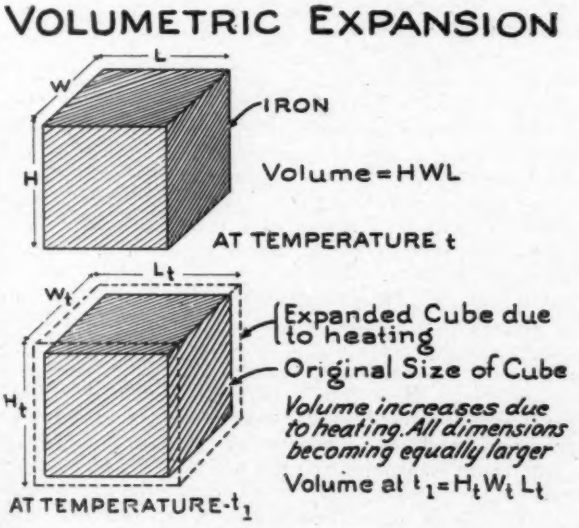
In each case a_1 is the coefficient of linear expansion. The new volume of the cube of iron will then be equal to $L_t W_t H_t$ and may be designated as V_t. Then V_t may be expressed in the following manner:

$V_t = L (1 + a_1 t) W (1 + a_1 t) H 1 + a_1 t)$.

or the equation for V_t may be written as follows:

$V_t = LWH (1 + a_1 t)^3 = LWH (1 + 3a_1 t + 3a^2 t^2 + a^3 t^3)$.

Now inasmuch as the factor a_1 is very small, the last two terms in the above parenthesis are extremely small and need not be considered in the formula or the calculations that are made to determine the



change in volume of a solid due to an increase in the temperature. Hence the equation for the change in volume may finally be written as follows:

$V_t = V_o (1 + 3a_1 t)$, as V_o is equal to LWH.

This then means that the coefficient of volumetric expansion is equal to three times the coefficient of linear expansion, a_1. Hence in making calculations all that is necessary is to multiply the coefficient of linear expansion, as given in the above tabulation, by 3.

Change in Volume Caused by Heat

For example, if the iron cube in question had an original volume of 5 cubic feet, and the temperature rose 10 degrees F., that is, from 60 to 70 degrees F., then the calculation of the new volume at 70 degrees F. would be carried out as follows:

$V70 = 5x\ (1 + 3 \times 0.00000556 \times 10) = 5 \times 1.0001668 = 5.000834$ cubic feet.

Solids will ordinarily expand as the temperature increases, but there are three notable exceptions to this rule, which are mentioned below, not because they are of any practical value to the industrial gas engineer, but just to illustrate the difficulty of applying any law, however well founded, to every individual case that may or can be found.

Thus, the substance silver iodide contracts between minus 60 and plus 142 degrees C.; cuprous oxide contracts after the temperature exceeds 4.1 degrees C. and the diamond and fused quartz will contract when heated above the temperatures minus 39 and minus 60 degrees C., respectively.

CORROSION IN GAS DISTRIBUTION SYSTEMS

An Answer to an Earlier Criticism
By C. A. Schneer

The American Gas Journal of May 24, 1924, carried an article on "Corrosion and Deposits in Gas Distributing Systems," which rather questions the conclusions drawn by the writer relative to causes of the internal corrosions of town gas systems as expressed in a paper presented recently.

The theory that iron corrosions in town gas systems are "primarily due to water, carbon dioxide and oxygen acting together," has been the point of discussion very frequently, but the merits of the argument are of little concern to the writer.

The collapse of a gas holder, involving hydrogen sulphide as the primary cause of such failure, was a splendid illustration of sulphide corrosion. "Primary" was used in this case to denote the agent believed to be directly responsible for this failure, and not in the sense of being in first position in a time cycle of corrosion.

It is not of so much concern to the writer which agent was the originator of the corrosion, but hydrogen sulphide severely finished it. We have seen some outstanding examples of the destructive corrosion of iron work in coal gas purifiers with cyanogen present, as compared with the action in water-gas purifiers where cyanogen was absent.

The rapid internal corrosion of relief holders with hydrogen sulphide present is very evident, when compared with the corrosion noted on storage holders with hydrogen sulphide absent.

We do know that anything that chemically changes the nature of an iron gas container, when it is in use with town gas, is detrimental, and consequently in the paper which the writer presented on this general subject the major object was to call attention to the principal corrosives and to voice an earnest plea that they be removed or minimized to that extent compatible with good economical commercial gas practice.

It does not seem so essential then that a controversy should be conducted in the technical section of the American Gas Association as to the relative demerits of the various corrosive constituents of town gases, but since present knowledge indicates that oxygen, carbon dioxide, certain sulphur compounds and cyanogen compounds are corrosives in town gas systems, every effort should be made to keep town gas as nearly free as possible of such impurities.

(This is in answer to a criticism of Mr. Schneer's original paper published in the American Gas Journal. The criticism was written by Mr. Dike Wilson of St. Louis.—Editor.)

EMPIRE STATE TURNS TO GAS AS BEST FUEL SO COMPANIES BUILD GREAT NEW PLANTS

Twenty-five million cubic feet of manufactured gas a day will be added to the capacity of New York State gas companies upon the completion of plants now under construction or planned for the immediate future, according to the New York State Committee on Public Utility Information.

This will make a 10 per cent addition to the total output of the state, which last year reached a record total of ninety billion cubic feet. It will anticipate the steadily increasing demand for gas service which last winter taxed the production capacity of many companies to the utmost.

The Iroquois Gas Company of Buffalo, where the supply of natural gas is no longer adequate, is building two units of a new plant that will produce 8,500,000 cubic feet a day, and two gas holders of five million cubic feet each. These will all be completed about the end of the present year, and will form part of a new plant which, when finished, will produce fifty million cubic feet of gas a day and will be the largest in the state. The units now under construction will cost $5,000,000, and the entire plant will, it is estimated, cost $25,000,000.

The Troy Coke and Iron Company has plans for a $5,000,000 coke oven plant, the gas from which will be sent to Albany, Troy, Cohoes and Schenectady, and will replace the present gas plants at those points. This plant, which will be in operation next year, will have a capacity of ten million cubic feet a day, and will distribute gas through twenty miles of high-pressure mains.

The Syracuse Lighting Company has broken ground for a new coal gas plant that will be completed next year. It will have a capacity of four million cubic feet a day and will cost about $3,000,000.

The Utica Gas & Electric Company will have completed by October 1 a new coal gas plant with an output of three million cubic feet a day, at a cost of $1,500,000.

"A feature in these plants is that they are all designed for the use of soft coal because of the increasing cost of anthracite, the irregularity of supply, and economies possible in the use of soft coal under certain conditions."

As The Journal Views It

THE AMERICAN GAS JOURNAL AND THE ATLANTIC CITY CONVENTION

The sixth annual convention of the American Gas Association, which is to be held in the early part of October, at Atlantic City, will mark the third yearly meeting of the association that has been covered by the American Gas Journal in the form of daily issues. This year, as last year, the American Gas Journal will publish five separate issues, commencing with Monday, October 13, and ending with Friday, October 17.

The issues will be available early each morning to every gas man attending the convention. They will be distributed throughout the various hotels at which the gas men will be stopping, and will also be on hand at points of vantage on the Steel Pier.

The purpose of these daily issues of the American Gas Journal is to afford each and every gas man, both at the convention and at home—for the Journals will also be mailed to every subscriber—an accurate story of the happenings and the doings at the convention, as well as a record of the various articles, papers and reports that are presented before the various section meetings.

The American Gas Journal, during convention week, will be pre-eminently the Journal of the American gas industry. Its columns will be open, as they always have been, to all gas men. We will be glad to receive stories, personal items, photographs, in fact, anything at all interesting about gas men and their work.

The sole purpose of the American Gas Journal, which has marked its progress throughout its entire history, and which becomes, it might be said, intensified at convention time, is to serve the gas man in every way possible, to make him feel that the columns of the Journal are his, so that he may look to it for any and all news and ideas of interest that pertain to the gas men and to the gas industry.

The first issue, which will appear Monday, will be devoted to the history of the American Gas Industry. It is to be the 65th Anniversary Issue of the American Gas Journal, for before the convention assembles in Atlantic City the American Gas Journal shall have passed its 65th birthday. This issue of the American Gas Journal—the oldest gas paper in the United States, and one of the oldest, if not the oldest, trade paper in the country—will endeavor to describe the advances that have been made from the earliest times of the gas industry to the present, during a greater part of which period the Journal has had the honor and privilege to have acted as the representative paper of the industry.

The American Gas Journal takes this opportunity to call to the attention of all gas men that it will be glad to receive from them photographs of installations of old gas plants, old gas appliances, etc., as well as items of historical interest, stories of how progress was made in the early and later days of the American Gas Industry. It will be glad to use these in making its history of the American Gas Industry as complete and as accurate a repetition as possible.

The American Gas Journal will be glad to welcome the gas men to Atlantic City. Let every gas man strive to make the convention a greater success than ever, whether he gets the chance to come to the convention or has perforce to stay at home.

The American Gas Journal pledges to do its bit in making the people realize that a convention is assembled of men and women from all over our land engaged in one of the most essential of all industries, the manufacture of gas.

THE SUMMER MEETING OF THE COMMERCIAL SECTION

Gas men have been informed of the summer meeting of the Commercial Section of the American Gas Association, which is to be held in the early part of August.

This undertaking of the Commercial Section is to be praised, for it is a progressive step in a new direction. It is rather a difficult matter to get people to think of serious things in hot weather, and it was a happy thought to combine business and pleasure by arranging to hold this meeting in the country among pleasant surroundings, so that a vacation could be had by the gas men while at the same time they attended to their business. It is hoped that this innovation will prove a decided success and that it will become a permanent feature of the activities of the American Gas Association.

MIDDLE WEST UTILITIES CO. REORGANIZED

Mr. Samuel Insull has made public the following statement, after the meeting of the board of directors of the Middle West Utilities Company:

"It is a great personal pleasure for me to announce that my brother, Mr. Martin J. Insull, has been elected by the board of directors as president of the Middle West Utilities Company. This honor, in my judgment, is a fitting recognition of his invaluable work as vice-president of the company since its inception in 1912 and also of his high ability displayed in his intimate relations to, and participation in, the management of such a vast and constantly growing institution.

"Several months ago changes were made in the company's by-laws, creating the position of chairman of the board. I have been elected to that office and will continue to take an active part in the company's management.

"The great development of the company's business has necessitated an increase in its executive staff. To meet this situation, four additional vice-presidents have been elected, all of whom have been associated with the company in important capaciites for a number of years. These new officers are: Mr. E. V. Graham, who will be in charge of the sale of securities; Mr. W. C. Sharp, who will be in charge of operations; Mr. George W. Hamilton, who will be concerned with the hydraulic and electrical engineering end of the company's business; and Mr. A. J. Authenreith, who will have the artificial ice engineering under his control. Mr. John F. Gilchrist, who has been a vice-president of the company, will continue in that capacity."

Mr. Samuel Insull, Jr., recently was elected a director of the company.

Mr. Martin J. Insull, newly-elected president of the Middle West Utilities Company, has been vice-president as well as a director and a member of the executive committee of the company since its organization in 1912. He is also an executive and director of several other important utility companies under the management of Samuel Insull and associates.

In the period since his association with the company the gross revenues of its operating subsidiaries have increased ten times over—from $3,680,676 in 1912 to $36,185,181 in 1923. The subsidiaries serve directly or indirectly more than 1,000 cities and towns and while their principal business is the generation and sale of electricity, they do a very large gas, transportation, water and ice business. The Middle West Utilities Company and its subsidiaries have more than 60,000 stockholders.

Mr. Martin Insull has received numerous honors from the electric light and power industry since his association with it. In 1920 and 1921 he served as president of the National Electric Light Association and in 1922 and 1923 was chairman of the public policy committee of that association.

ROBBING UTILITIES TO PAY PUBLIC

To rob the public utilities of our nation to pay the public is to lose both ends, says Russell Robb, famous economist, in a recent article in the Atlantic Monthly.

"It is easy for the public to destroy the value of private property," he says. "It is even easy for the public to take property away from the individual, but it seems extremely difficult for the public to take property, or its value, away from individuals, and at the same time increase the public's possessions.

"For a long time the public was deluded into thinking that anything that could be taken away from the railroads, street railways, lighting companies and other public service corporations was pure gain for the public. They succeeded, it is true, in taking enormous value away from the utilities, but the value was not transferred to the public; it was destroyed.

"The value that attached to these utilities was under conditions that induced owners to put new capital into them, extend the use and maintain the greatest service. When the public attempted to take value away from the owners by loading the properties with burdens and insisting on prices that were less than cost, the public did not add to their own profit, but began to lose conveniences they wished to have, and, in some cases, even ran the risk of losing service, or did lose it altogether, to their own great hardship and cost.

"It is curious that property of this kind has been conspicuously selected for attack. It represents a large portion of the country's permanent investment, and the investment has been made to give the public generally the advantages of the great useful agencies that have been the outcome of the last century's scientific discoveries.

"We hear very much of the 'common good' and of the Utopian condition when all the property will be for the service of all; when the old rights of ownership will be less inviolable; when control of all property will rest with the common people; and yet the first movement that leads away from purely individualistic control and use is met, not with encouragement, but with suspicion and attack. It seems a pity that so much expense and loss is necessary before the public learns the difficulties in the way of taking value to themselves. The heartening fact is that they do learn it."

Catechism of Central Station Gas Engineering in the United States

Installment No. 31

(Continued from last week)

The test meter should always be set level.

Test A can be made without a test meter, using a pressure gauge only. A common, dry meter can be used to measure the leakage.

The above is an accurate and scientific, if somewhat difficult, method of proving a station meter. A more simple method is as follows:

Simplex Method of Testing

To prove the tightness of the drum: Proceed as above down to and including the determination of the tightness of case and connections, and the correctness of the water line. Then run gas through both meters at a rate about equal to the maximum capacity of the test meter, and again at half that rate, making the test cover in each case an equal number of, and at least three full, revolutions of the drum of the station meter. If the tests agree, the drum is tight.

This method does not necessitate opening the manhole of the meter.

Determine the capacity of the drum per revolution as above.

Count the teeth on the gear wheels, as above, and calculate the number of feet registered by one revolution. If you do not understand the gear wheel and dial combination, test for drum tightness and capacity, as above, disconnect test meter and turn gas through the station meter as if in regular use for twenty revolutions of the drum, as shown on the pointer. See if the dial registers twenty times the determined capacity of the drum. If it does, the meter registers correctly.

The By-Pass

168. Give a sketch of a by-pass as connected to a station meter and describe its use and purpose.

Ans. The accompanying cut shows a meter by-pass. The meter may be by-passed for cleaning, repairing, or other purpose, by opening the valve on the horizontal pipe and shutting the valves on the two vertical pipes.

Merits of Concrete and Brick Work for Walls of Gas Holder Tanks

169. What are the respective merits of concrete and brick work as the material to be employed in the construction of the walls of gas holder tanks?

Ans. As a material to be employed in building the walls of gas holder tanks, concrete possesses the following advantages over brick work: Its tensile strength is greater and can moreover be easily increased by embedding in the tank wall, as it is built up, rings of hoop iron which may be placed from four to six inches apart horizontally and from five to six feet apart vertically. This greater tensile strength reduces the liability of cracking when the nature of the soil is such as to make it difficult to secure a good earth backing for the wall. A tank can be built of this material without the aid of any but comparatively unskilled labor under proper supervision. It can be made water tight of itself, by the use of materials free from loam or dirt and the exercise of proper care in mixing and placing in position, while it is almost impossible to build a brick wall that will be water tight of itself, and in any case the concrete tank can be made tight, either by a backing of clay puddle or by rendering with cement, as easily as can the brick tank. As a general thing concrete is cheaper than brick work, and this is especially the case when cheap broken stone or gravel, or an accumulation of old retort material or bricks are available for aggregate. Well made concrete is not as much affected by exposure to the weather as is even the best brick work, and therefore a concrete tank will not be subject to as much wear at the water line as a brick one. Altogether, unless bricks are cheap and the material for the aggregate of concrete dear, concrete is the best material to use for the walls of holder tanks, where the conditions are such as to permit the economical construction of a masonry tank.

The Use of Concrete

Concrete is used for tank walls much more frequently in England than in this country. Mr. N. H. Humphrys, writing of "Large Gas Holders in England" (American Gas Light Journal, Vol. LXX, page 803) says: "The next direction in which progress has been made is the substitution of cement concrete for brick work, which means a large saving both of material and labor, together with increased strength. Concrete is not only easy of erection, requiring no skilled labor, but it is also stronger than brick. It offers every facility for the incorporation, within its substance, of iron bands, and concrete strengthened with iron ties is in some respects a perfect material. The iron, being enclosed, is preserved from corrosion or changes of temperature, and we have the weight and rigidity of the masonry tank, combined with the strength of the iron tank, without the inelastic brit-

tleness of the one and the contraction and expansion of the other. Gas works are continually producing large quantities of hard clinker, broken brick, old retorts, etc., that are very suitable for aggregate, but which only realize low prices if offered for sale. By exercising a little foresight, sufficient material can be saved up in the course of a few years to supply all that is wanted."

Building a Wall of Gas Holder Tank With Concrete

170. Having selected concrete as the material for the wall of a gas holder tank, describe the method that you would adopt to build up the wall and insure its being water tight.

Ans. Various methods may be adopted for building a tank wall of concrete. When, as is usual, a trench is excavated around the whole circumference of the tank with an outer diameter greater than that of the outer faces of the piers, it is customary to use wooden forms made to the proper curve, one concave for the outer face and one convex for the inner face of the wall, from 2 feet 6 inches to 3 feet high, and of a convenient length, usually that between two piers. These forms being set on the circumferences of the outer and inner faces of the wall, and properly supported and braced, the concrete is put in place between them and thoroughly tamped. When it has become sufficiently set, the forms are moved to the portion of the wall that is to be next made. For the piers, rectangular boxes of the proper size are used in the same manner. A paper read by Mr. C. W. Andrews, before the Ohio Gas Light Association, in 1899 (American Gas Light Journal, Vol. LXX, page 445; Progressive Age, Vol. XVII, page 125), describes very fully the construction of a concrete tank by this method, and should be read by the students.

The Foundation

When the ground is firm and can be securely held by timbering, laid out so that small sections of it can be removed just ahead of the concrete work, as the wall is built up, the outer edge of the excavation can be made vertical and to the proper circle for the outside of the wall at its base, and the concrete tamped between the earth and an inner form. In this way a backing of undisturbed earth is obtained at the bottom of the wall that must of necessity be much more solid than any back filling. When the offset in the wall is reached, an outer form must be used, and the space between wall and earth filled in as usual, but even here the space to be filled is much smaller and the backing that much stronger.

The Wyatt Method

Mr. V. Wyatt, an English constructing gas engineer of great experience, advocated and used a method for building the walls of large tanks in concrete blocks of the full vertical height of the wall and with radial sides. Each pier formed one block, and each bay between the piers was divided into three. The idea was that, it being cheaper to sink, say, 48 comparatively small pits than it was to dig and brace a large circular trench, there would be a saving in the cost of the tank. The piers were first put in, the work being carried on on all four quarters of the circle at the same time, then the blocks forming the centers of the bays, and then the two blocks necessary to complete each bay. In each case the excavation was made of just the right shape and size for the wall at the bottom, and timbered in such a way that sections of the timbering three feet high could be removed as the concrete was put in, and the concrete put in in layers three feet deep, filling up the whole space of the excavation at the bottom. When the offset at the back of the wall was reached, a form was used for the back and the concrete tamped between this form and the inner face of the excavation, the space occupied by the form being afterward filled in with earth tightly tamped. All of the sections were made with radial sides and keyed into each other to prevent leakage. Thus the wall, when finished, was a circular arch formed of large blocks. Hoop iron was used, as indicated in the answer to question No. 169, the ends being left projecting and turned up in the piers and center blocks to be turned down and built in the connecting blocks, thus forming a bond between the blocks. After the wall was finished, the excavation of the center was carried on without any need of timbering. Mr. Wyatt's paper can be found in the American Gas Light Journal, Vol. L, page 655.

Making the Wall Water Tight

In this case the wall was made water-tight by a lining of 9 in. of brickwork, built so as to leave a space of 2 in. between the outer circumference of the brickwork and the inner circumference of the concrete, this space being grouted with Portland cement as the wall was built.

However, if care is taken to use nothing but sharp, washed sand for the mortar, and for the aggregate materials free from loam and dirt, and of such size or sizes as to prevent the existence of any large spaces between the different pieces, and if the mortar and aggregate are in proper proportions and well mixed, and the concrete is put into place carefully and well tamped, the wall will be water-tight without any further treatment.

If these precautions are not taken, the wall should be rendered with ¼ in. to ½ in. of neat Portland cement, or lined and grouted as above. The lining, while it is more expensive, protects the cement from the action of the water in the tank and the weather, and thus prevents any cracking and possible leakage. Such a lining should, of course, be tied to the concrete wall at proper intervals.

Quality of Brick for Holder Tank Work

171. What kind of bricks are best for holder tank work?

Ans. Baker's Treatise on Masonry Construction contains the following paragraph: "Requisites for Good Brick. 1. A good brick should have plane

faces, parallel sides, and sharp edges and angles. 2. It should be of fine, compact, uniform texture; should be quite hard, and should have a clear ringing sound when struck a sharp blow. 3. It should not absorb more than one-tenth of its weight of water. 4. Its specific gravity should be two or more. 5. The crushing strength of half brick, when ground flat and pressed between thick metal plates, should be at least 7,000 pounds per square inch."

Property of Good Brick

For holder tank construction it is especially important that the brick should be strong, hard and dense. While all twisted or distorted brick should be refused from tank construction, it is not essential that the faces should be exactly parallel. A slight bulge or belly to the larger surfaces of the brick is not a fault. Such a brick when shoved into place, as described in answer to question No 172, is much more certain to force out all the air and insure a well filled joint than a brick that is hollow on the faces or, even, than a brick that is exactly flat, with parallel faces.

Brick for a holder tank should not be bought on a sample. The kiln from which the brick is to be purchased should be examined, if possible, and if not, the bricks should be seen in large numbers before purchase is made.

Some holder tanks depend for their tightness upon a filling of clay under the bottom and back of the side, the brick being intended to give form to the tank, support the puddle and guide the holder. Such a tank may appropriately be made of porous brick, provided the brick has sufficient strength, for there is no objection to the water percolating through the brick and coming in contact with the clay outside. In fact, it is important, with such tanks, that this should be the condition. Where, however, the tank depends for its tightness upon the brick work, the brick should be dense.

Laying Brick in Holder Tank Work

172. Describe the proper method of laying brick in holder tank work.

Ans. Baker's Treatise on Masonry Construction gives the following instructions: "Brick should not be merely laid, but every one should be rubbed and pressed down in such a manner as to force the mortar into the pores of the bricks and produce the maximum adhesion; with quick-setting cement this is still more important than with lime mortar. For the best work it is specified that the brick shall be laid with a 'shove joint'; that is, the brick shall first be laid so as to project over the one below, and be pressed into the mortar and then be shoved into its final position.

"Since bricks have great avidity for water, it is best to dampen them before laying. If the mortar is stiff and the brick dry, the latter absorb the water so rapidly that the mortar does not set properly and will crumble in the fingers when dry. Neglect in this particular is the cause of most of the failures of brick work. * * * * Wetting the brick before laying will also remove the dust from the surface, which otherwise would prevent perfect adhesion."

Details of the Method

There is among constructors a difference of opinion as to how the bricks should be put into the wall. The following is from a man who has had considerable experience in tank work, and whose tanks have been tight:

"The bricklayer should put only enough mortar on the wall to embed one brick, place the brick in the mortar, then give it a sliding motion in two directions to fill the joints on one end and one side, and to expel the air from under the brick. The mortar should then be cut off the top and returned to the board.

"It is impossible to accurately describe how to push brick; the only way is to get a brick mason that can and will do this kind of work and have him instruct each mason that is taken on the job how the work is to be done."

The Grouting Process

An advocate of grouting, who has been perfectly successful in tank work, writes as follows: "The thickness of joint being decided upon, the outside and inside circle should be laid up five courses, making a trough for filling in. Spread thick mortar in the bottom of this trough and lay the brick in this mortar, care being taken that the bricks shall be put down in such a manner as to drive all the air out as they fall into place. This makes a full joint under the brick. Then grout with mortar to be thrown over the tops of these bricks from a bucket in the same manner as coke is quenched, the mason using his trowel to fill in any joints that are not filled by spreading the mortar in this way. On this layer of bricks spread another layer of stiff mortar and lay another course of brick, grouting in these as in the former case. Care should be taken to arrange headers and stretchers, so that there will be a good bond.

"By pursuing this method a fair mason can lay from 1,800 to 2,200 brick per day; 2,100 to 2,200 brick were laid per day, per mason, under my supervision. The brick for the inside and outside circle should be wetted with a hose. The brick for filling in should be thoroughly wetted, and I would advise having a number of tubs placed at intervals on the scaffold, and the brick thoroughly soaked with water in these tubs before being put in the wall; in fact, the brick should be taken from the tubs and placed in the wall without giving them any time to dry."

There can be no doubt that entirely satisfactory tanks have been built by each method. It is probably equally true that a mason can lay from 200 to 400 more bricks a day by adopting the second or grouting method. It is also probably true that more close supervision is required to obtain good work with the grouting system.

Rendering With Neat Cement

173. What is meant by the statement, "The tank was rendered with neat cement?" What circumstances call for the rendering with cement of a brick tank for a gas holder?

Ans. To "render" means cement unmixed, free from adulteration. Therefore, the statement, "The tank was rendered with neat cement" means that the wall and bottom were covered with one coat of a mixture of cement and water, without sand, applied directly to the masonry.

A brick tank for a gas holder would be rendered with cement to make it watertight when the local conditions were such as to cause to be excessive the cost of securing this tightness by means of a backing of clay puddle put immediately outside the wall as well as under the foundations and the bottom of the tank. If not too expensive, the use of clay puddle is preferable to rendering with cement, because when a holder tank is made tight by puddle the contained water soaks through the brick work and exerts its pressure upon the backing and not upon the wall, as it does when the wall is rendered on the inside, and the wall being relieved of the pressure is not so apt to crack.

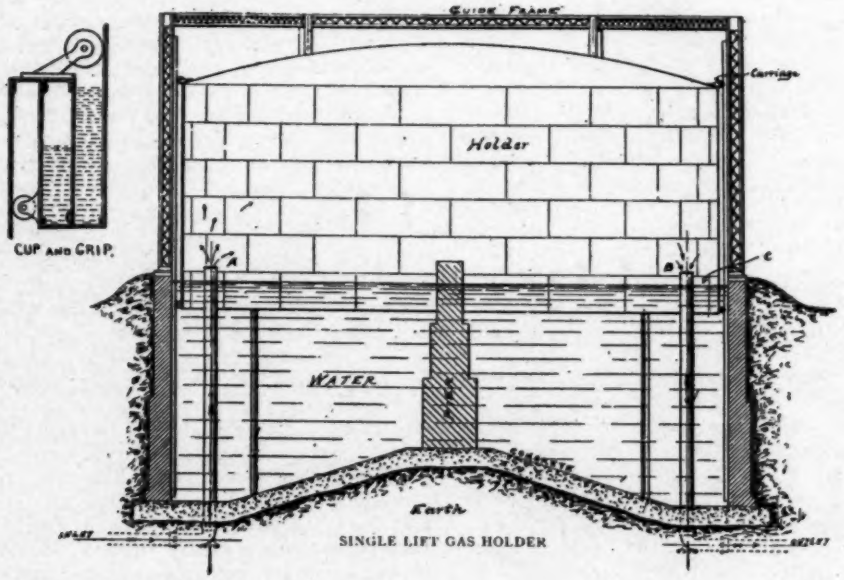
The Single Lift Gas Holder and the Telescope Holder

174. Describe the construction and action of both a single lift gas holder and a telescopic holder. Make sketches to illustrate your descriptions.

formed by rollers or wheels attached at equal distances around the top and bottom of the cylinder, working against rails or channel irons fastened to the inside of the tank wall and to the columns. The tops of the columns are joined by girders. Gas is admitted to and drawn from the cylindrical vessel or holder proper by pipes passing down under the foundation of the tank and up to a point above the water level. When gas is admitted to the holder through the inlet pipe it enters the space between the closed top or roof and the water which seals the open bottom. As the gas enters, the pressure increases until it is sufficient to overcome the weight of the holder, which then begins to rise and continues to do so as long as gas is entering. Gas is drawn out by opening the outlet valve, when the weight of the holder forces the gas out and the holder falls. When gas is being sent into and drawn from the holder at the same time, the holder will rise when the volume of gas entering is greater than that leaving it, and fall when this condition is reversed."

The Telescopic Holder

In a "telescopic" holder the inner section is exactly the same as a single lift holder, except that it is finished at the bottom with a "cup" instead of an angle iron "curb." The "cup" is an annular trough, the inner side being formed by the bottom sheet of the inner section, and is usually rectangular in cross section. Its construction is shown by the cut. The outer sections are merely cylindrical shells of larger diameter than the inner section, and of about the same height. At the top is fastened a "grip" which is the same as a cup turned upside down, as shown on the cut. The bottom is finished with another "cup" if the section is an intermediate one in a series, or with a "curb" if it is the outside one of the series.



SINGLE LIFT GAS HOLDER

(Thirty-second Installment Next Week)

THE REACTIVITY OF COKE AND CONTROLLING CONDITIONS

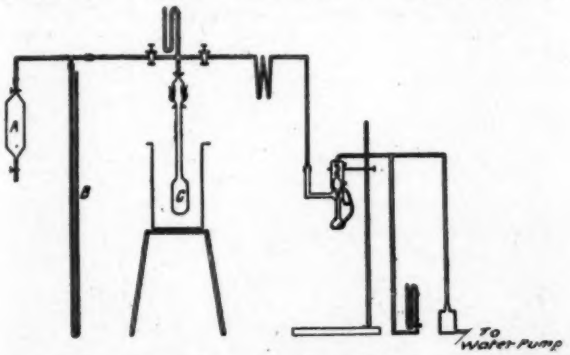
(Continued from page 704)

other words, it must give the fineness of the internal coke structure.

The method which was employed in fact gave very good results and served well to establish in clear, unequivocal terms the relation between the reactivity of the coke and the gasification conditions.

The Method

The reactivity is determined in the following manner: The coke sample is placed in a flask C. A definite weight of sample is employed and is made gas-free in that flask. This is accomplished by constantly removing the evolved gases by pumping them off through the aid of a vacuum pump, which is seen in the accompanying diagram, while the coke is being heated to a high temperature, the temperature of boiling sulphur—444.5 degrees C. The absorption flask, which has been thoroughly evacuated, is now cooled to zero degrees C. in ice water and then connected with the receiver A, which has an accurately determined volume. This receiver is filled with the



gas whose absorption by coke is to be determined, the gas being maintained at a known pressure and temperature. After a condition of equilibrium has been attained, a barometer B indicates the final pressure in the entire system, which is composed of the pressure, which is determined by the expansion, taking into consideration the temperature, the absorption of the gas itself. From this figure there may be calculated the quantity of gas that is absorbed at the final pressure within the system.

The Results

When measured volumes of gas are permitted to stream through the absorption apparatus several times in succession, then curves are obtained for the absorption process at different final pressures. From these curves it is then possible to deduct directly the degree of absorption at any definite final pressure, as, for example, 500 millimeters of mermury. On the other hand, the constants of absorption can also be calculated from these results. With the help of these constants it is possible to calculate the absorption that will take place with different kinds of coke under the condition of constant final pressure.

Curves Showing the Results

Curve sheet 1 shows the different quantities of gas that were absorbed under different final pressures in the case of semi-coke, after-heated coke and metallurgical coke. In each case twenty grams of the substance were used and the size of the particles were from three to five millimeters. It is clear that different kinds of coke possess altogether different degrees of reactivity.

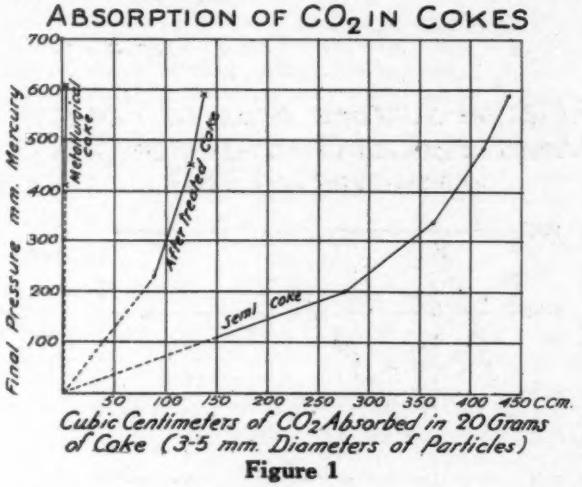


Figure 1

When a graphical study is made of the absorptive power of coke at a given pressure, it is found, as indicated in figure 2, that there is a definite relation between the absorption and the ignition temperature or between the fineness of the structure of the coke and the reactivity. Figure 2 shows this relation when using carbon dioxide as the gas to be absorbed and for three different sizes of coke.

It must be remembered that it is not possible to formulate any very exact law which expresses the relation between the ignition temperature of the coke and the absorption capacity of the same. It is not possible to calculate one property when the other is given. But in examining quite a variety of cokes and testing them under the aforementioned conditions, it is found that there is a definite relationship between these two properties.

Technical Application of the Information

In making technical use of this information it appears most important of all to determine the conditions which cause the decreased relative surface area of the pores in the coke. The semi-coke, with that purpose in mind, was accordingly heated to 1100 degrees C. for one hour long. This is the highest temperature to which the metallurgical coke is subjected. The long heating at such a high temperature did not make the coke as difficult to burn as the metallurgical coke.

The following test shows that the increase in the ignition temperatures of the coke, hence the attainment of difficult combustibility, often sets in very rapidly and then progresses slowly thereafter as the heating is continued.

Heating Test

Several samples of semi-coke, whose particles possessed the average size of 0.1 to 1 millimeter, which makes possible quick penetration of the heat, were heated for different lengths of time to a temperature of 1100 degrees C. The results that were obtained from this experiment were as follows:

Duration of the heating (min.)	0	5	60	90
Ignition temperature in deg. C..	328	447	483	530

If the degree to which the coke was made more difficult to burn was limited just by the length of the heating process alone, then quite definite difference must have been found between the ignition temperature of the different layers in a cake of coke as it comes from the retort or chamber. Experiments, which were carried out to determine if such was the case, have not, however, yielded conclusive results. The observations which were made on this matter show that in connection with the changes taking place in the specific weight and the hardness of the coke, the structure of the coke in particular is definitely determined at the temperature at which semi-coke is formed. They also indicate that if the heating is prolonged, what is particularly produced is an increase in the density of the coke due to its shrinkage.

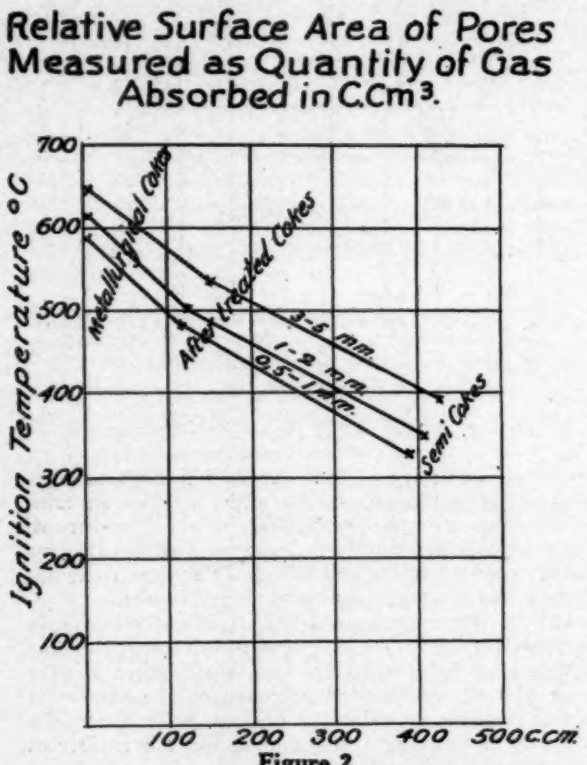


Figure 2

Rapidity of the Absorption

The absorption of gases by coke is composed of the absorption that is caused by the external surface of the grains, including the open cells of the coke and of diffusion of the gases into the coke structure. Observations have shown that during the course of the absorption process, until an equilibrium is reached, various changes take place in the character of the coke.

It is unfortunate that the first observations were made after a period of ten minutes had elapsed, as they are of importance primarily in determining the time when an equilibrium has been attained. As far as the possibility of deriving any definite conclusions from these curves is concerned, we shall have more to say about this later.

However, it was clear right at the outset and it may be easily seen from the character of these curves that in the case of metallurgical coke, which possesses a particularly dense structure, sorption, as distinguished from diffusion or solution, predominates. Hence an equilibrium quickly sets in. On the other hand, in the case of after-heated semi-coke and regular gas coke, and even to a higher degree in the case of the original, unheated semi-coke, equilibrium is established only after quite a long time, as in these cokes diffusion or solution of the gas takes place, which is in itself a rather slow process.

Absorption of Hydrogen

The diffusion phenomenon must take place with a still greater intensity, when in place of the carbon dioxide gas, which is employed because of its greater absorptive capacity, there is used the less absorbent but easily diffusing hydrogen. If hydrogen gas is employed in the experiments, then the following relationship can be established between the quantity of this gas that can be absorbed by twenty grams of the substance (possessing particles from 3 to 5 millimeters in size) and the ignition point of the coke. The figures in the following tabulation were obtained by experiment:

	Cubic meters of hydrogen adsorbed	Ignition temperature deg. C.	Calculated
Semi-coke	9.5	397	(393.5)
After-heated semi-coke..	5.0	532	(531.5)
Metallurgical coke	1.5	640	(639.0)

In explaining the structure of the coke, one fact is of interest above all others and that is that the absorption of different gases does not follow the simple Baerwald absorption law, whereat, for example, the ratio of absorptio nfor carbon dioxide and for hydrogen in the case of one kind of coke must be the same for any other grade of coke. It has been found to be true that certain kinds of coke, which absorb large amounts of carbon dioxide, do not absorb nearly as much hydrogen gas. Some results are shown in the following tabulation:

	Absorbed gas in cubic centimeters		CO_2
	carbon-dioxide	hydrogen	H_2
Semi-coke	416.5	9.6	43.8
After-heated semi-coke ..	132	5	26.4
Gas coke	92	3	30.7
Metallurgical coke	2	1.5	1.3

From this the conclusion may be drawn that the easily diffusing gas hydrogen possesses the power of penetrating into the internal structure of the coke

(Continued on page 716)

HOW HOME SERVICE INCREASES GAS SALES

(Continued from page 702)

If a woman attends nine out of the twelve lessons she is entitled to a certificate. She presents her card at each lesson and has it punched. In this way an accurate check of attendance is made.

The class always draws a crowd of several hundred women, out of which number the majority qualify for the certificate. These registered classes are so popular that the seventh series is now being given. At this time 2,000 certificates have been given out. That means that those women, who felt so uninformed about cooking in general that they followed through a complete cooking course with sustained interest, are going to cook more and better and, of course, with greater ease than they ever did before. They will use more gas and will be delighted with the results. Moreover, they will tell their neighbors about it.

This course has been given twice over the radio. The women who enroll for it are required to report nine weeks out of the twelve that they have tried the recipes. This, too, means the use of more gas.

Popularity of the Lecture Courses on Cooking

So general is the interest in this course becoming that groups in neighborhoods not reached by the Home Service Department in the branch stores are requesting that the course be given for them in the Field Houses of the nearest park, or in the parlors of their Church House. To meet this demand a demonstrating kitchen unit has been planned, which makes it possible for any member of the Home Service staff to give as good a demonstration in any of these quarters as in her own department kitchen.

The neighborhood papers in these localities reflect the interest in the course by carrying news items about the activities of the department. One of the new, up-to-date banks near the Milwaukee avenue Home Service Department was so interested in the service that it voluntarily carried a page announcement of the work of the department in the monthly bulletin distributed to customers and even displayed on the bank bulletin board in a prominent position the Home Service posters. This means that Home Service is filling a vital need in the community. Further proof of this lies in the fact that the auditoriums, thought to be ample at the time, planned for Home Service in the three neighborhood stores, are already too small to comfortably seat the crowds which attend the demonstrations.

Returns from the Radio Talks

Recently the request was made over the radio that those who listen in daily to the Home Service food talks drop a card stating that they were regular listeners. Within twenty-four hours 900 responses had come in and for several weeks cards steadily continued to come. According to one large advertising concern, only one person out of one hundred will actually take the time to write and mail a response to such a request. That means that there

3,000 Women and Children Attended the Children's Christman Radio Party. This Picture Shows a Portion of the Audience That Could Not Be Accommodated in the Home Service Auditorium

is a stupendous audience listening in to the daily food talks, jotting down the recipes and serving radio dinners everywhere.

The cartoons in the metropolitan newspapers and in papers throughout the adjoining states recognize this general interest in the radio food talks by featuring family life centered about the radio dinner. Repeatedly the papers feature the picture of Mrs. Peterson, dear to the hearts of her radio pals through the service and good food which she brings into their homes. One of the Sunday editions featured a large picture of her with the comment: "'Good Morning, Girls and Boys!' Everyone Knows Who That Is!"

This radio service is such a recognized daily feature all over the city that it enters into an interview with the wife of the mayoralty candidate, who admits that she is fond of the radio for grand opera and the daily food talks.

Interest Shown by Other Industries

An article appearing in the Retail Grocers' Magazine urges the grocers to make the most of this interest in radio recipes by offering their customers the foods broadcast in the table talk of the day.

The radio magazines seek interviews and pictures of Mrs. Peterson for their readers want to know more about her and the work of our department.

A national magazine featured pictures of a radio party given in Home Service to which about 2,000 guests came when about three or four hundred were expected. That was the first radio tea. Several parties have been given since then to the "radio pals," with ample provision made for the thousands who came. Food cooked in the Home Service kitchen is served, the program is given from the platform of the demonstration kitchen and the other rooms of the department are all on display. The crowd is interested and comes again, as in the daily lecture-demonstrations show.

So effective is the Home Service demonstration plan in connection with the sale of gas that a recent issue of a national advertising journal quoted the plan of the service at length in an article on the subject.

Home Service Is Getting Across

This evidence of general interest in the magazines and newspapers is just another indication to us that Home Service is getting across. We know it is from the demand which we have for the daily recipe sheets reaching us through letters, 'phone calls, through members of the family coming into the department for the recipes when "mother" can't come in herself. This, together with the large daily attendance at the demonstration-lectures and the huge unseen audience over the radio, means that more meals are being served at home and that the housewife is actually cooking more food with results more satisfying to her and to her family.

Through the educational propaganda of good home cooking we believe that we are gaining our purpose, which is to sell more gas to the hundreds of thousands of families in Chicago.

(Continued from page 714)

with almost as much ease when the coke is of dense structure as when it is more porous. In other words, the sorption process is predominant in the case of the dense metallurgical coke when the heavy gas carbon dioxide is employed, while the diffusion process predominates in the case of the easily diffusive hydrogen gas.

Then, again, from this observation may be derived an explanation of the fact that the curve indicating the relation between the absorption of hydrogen and the ignition temperature of the coke is a straight line. In this case the coke structure is actually penetrated by the gas, while in the case of absorption of carbon dioxide, the sorption, that is, the condensation of the gas on the outer surface of the coke and in the cells, plays the important role.

JAPAN NOW USES GAS INSTEAD OF CHARCOAL

Japan, in her ready acceptance of things Occidental, has discovered the value of manufactured gas for heating, both in the home and in factories, and there are now seventy-six gas companies furnishing this public service, with a total production of nearly ten billion cubic feet a year. This is double the amount of gas used in 1914, when there were only ten companies in the entire Island Kingdom.

All the conditions making for the successful development of gas distribution exist in Japan, where the population, greater than that of Great Britain, is largely urban. Japan has sixty-six cities, varying in size from Tokyo, with more than two million inhabitants, and Osaka, with a million and a quarter, down to Otsu, with thirty-odd thousand, while, of these, fourteen have more than four hundred thousand inhabitants each.

Gas is used in the little Japanese homes for cooking and for heating in place of the charcoal brazier of earlier days. In addition to the wide use of electric lights, more than a million gas lamps are used in city streets, and with industrial heating applications in many factories there are in service more than twenty-three hundred gas engines, used to drive machinery in the myriad tiny factories that produce everything from ivory carvings to tooth brush handles, and from plaited-grass sandals to sausages.

NOT EVERY SHEEP CAN BE A GAS METER

From the broad plains of New Zealand come the sheepskins for most gas meters, according to the Michigan Public Utility Information Bureau.

Skins from New Zealand sheep are used in the diaphragms of gas meters because the animals in that country are not subject to contact with barbed wire fences and parasites, such as ticks, the bureau statement said. When the sheep runs into a wire fence, abrasions are often made in the skin which make it unfit for use for diaphragm purposes.

A gas meter must be as nearly 100 per cent accurate as possible, and any imperfection in the skin is likely to impair the efficiency of the diaphragm, which measures the gas used.

Current Market Prices

COALS (By Courtesy of Coal Age)

A. Bituminous.

(Spot prices, F. O. B., mines, net tons).

High Volatile, Eastern	Market	Price
Pool 54-64 (Gas Standard)	New York	$1.35 to $1.65
Pittsburgh screened gas	Pittsburgh	2.30 to 2.50
Pittsburgh gas, mine run	Pittsburgh	2.00 to 2.25
Kanawha lump	Columbus	2.00 to 2.25
Kanawha mine run	Columbus	1.25 to 1.60
West Virginia lump	Cincinnati	2.00 to 2.25
W. Virginia gas mine run	Cincinnati	1.25 to 1.60
Midwest		
Indiana 4th vein lump	Chicago	2.50 to 2.75
Indiana 4th vein mine run	Chicago	2.25 to 2.50
South and Southwest		
Big Seam lump	Birmingham	3.10 to 3.30
Big Seam mine run	Birmingham	1.50 to 2.00
Southeast Kentucky lump	Louisville	2.00 to 2.25
Southeast Kentucky mine run	Louisville	1.35 to 1.75

B. Anthracite.

(Spot prices F. O. B. mines, gross tons),

	Market	Freight rates	Independent	Company
Egg	New York	$2.34	$8.50 to $8.75	$8.55 to $8.96
Egg	Philadelphia	2.39	8.90 to 9.60	8.90 to 8.95
Egg	Chicago (net tons)	5.06	7.99 to 8.10	7.94 to 8.00

COKE (By Courtesy of Iron Trade Review).

Connellsville, furnace	$2.90 to $3.00
Wise County, furnace	3.75 to 4.50
Alabama, furnace	5.00 to 5.25
Foundry, Newark, N. J., del	10.41
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.00
Foundry, St. Louis	12.00
Foundry, Granite City, Ill	9.00 to 9.50
Foundry, Alabama	5.75

PETROLEUM (By Courtesy of Oil, Paint & Drug Reporter)

(Prices at wells, per bbl.)

Pennsylvania—Ohio—West Virginia.	
Cabell, West Virginia	1.60
Corning, Ohio	1.90
Lima	2.08
Pennsylvania	3.00 to 3.25
Wooster, Ohio	1.90
Indiana—Illinois.	
Illinois	1.87
Indiana	1.88
Oklahoma—Kansas.	
Healdton	.90
Mid-continent (low gravity)	.90 to 1.05

* No quotation, due to strike.

Gulf Coast.	
Gulf Coast, Grade A	$1.50 to $1.75
Gulf Coast, Grade B	1.30 to 1.45

GAS OILS.

Gas Oil, Bayonne, bulk gal	5¼ to 6c
Gas Oil (32-36) Illinois-Indiana,	4.86 to 5.11
Gas Oil (32-36) Oklahoma, gal.	2⅝ to 2¾c
Gas Oil (32-36) Gulf Coast, gal.	4½ to 5c

PIPE AND FITTINGS—CAST IRON GAS PIPE.

(By Courtesy Iron Trade Review.)

Four-inch, Chicago	$63.20 to $64.20
Six-inch and over, Chicago	57.20 to 59.20
Four-inch, Birmingham	56.00 to 59.00
Six-inch and over, Birmingham	52.00 to 53.00
Four-inch, New York	69.60 to 71.60
Six-inch and over, New York	64.60 to 65.60
Standard fittings, Birmingham, base	115.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

BY-PRODUCTS

(By Courtesy of Oil, Paint and Drug

Ammonia aqua, 16 deg. drums lb	5 to 5¼c
Ammonia aqua, 20 deg. drums lb	6¼ to 6½c
Ammonia aqua, 26 deg. drums lb	6½ to 7 c
Ammonia squa, anhydrous cylinder, lb	30 to 36 c
Ammonium sulphate, bulk F. O. B. Works, per 100 lbs	$2.45 to $2.50
Potash prussiate, yellow casks, lb	18 to 18½c
Potash prussiate, red casks, lb	37½ to 40 c
Soda prussiate, yellow casks,	10½c
Soda sulphocyanide, barrels, lb	45 to 55 c

COAL TAR BASIC PRODUCTS.

(By Courtesy of Oil, Paint and Drug Reporter)

Benzol C. P. tanks, works, gal.	24 to 25c
Benzol, drums, gal	30c
Benzol, 90% tanks, works, gal.	23c
Benzol, 90% drums, gal	28c
Napthalene, flake, barrels, lb	5 to 5½c
Napthalene, dyestuff bags, lb	4½ to 5 c
Solvent Naphtha, water white works, gal.	24 to 25c
Solvent Naphtha, drums, works, gal	29 to 30c
Toluene, C. P. tanks, works, gal.	31c
Toluene C. P. drums, works, gal	36c

Coal

Production of bituminous coal reacted slightly during the third week in July, output during that period, according to the Geological Survey, totaling 7,403,000 net tone, compared with 7,502,000 net tons during the preceding week, according to revised figures. Anthracite production also fell off during the week ended July 19, 1,840,000 net tons having been turned out, a decrease of 31,000 tons from the previous week.

Gas Oils

Gas oil was rather easy, and about ¼c per gallow lower, the market ranging 5¼c to 5¾c per gallon, f.o.b. Bayonne, as to grade. According to the Western Petroleum Refiners Association, reporting the operations of 141 inland refineries fo rthe week ended July 12, stocks on hand at these refineries totaled 102,630,949 gallons of gas and fuel oil, a decrease of 1,392,061 gallons from the stocks held at the close of the previous week. Production for the week was 31,832,937 gallons, a decrease of 2,926,256 gallons from that for the preceding week.

NEWS OF THE GAS INDUSTRY

Public Service Gas Co. Merged

Newark, N. J.—The merger of Public Service Gas Company, Public Service Electric Company and United Electric Company of New Jersey, into Public Service Electric & Gas Company, constituting what is said to be the largest operating public utility company of the kind in the world, was completed recently, when the consolidation agreement was filed in the office of the Secretary of State at Trenton.

The merger is the leading feature of the plan of financial readjustment announced some time ago by the Public Service Corporation of New Jersey, which included an exchange of the corporation's general mortgage 5 per cent sinking fund gold bonds for first and refunding mortgage 5½ bonds of Public Service Electric & Gas Company.

It was announced by the corporation today that deposits of bonds for exchange have been sufficient to meet requirements and that United States Liberty Loan 4¼ bonds, sufficient to secure the principal amount of the undeposited general mortgage 5 per cent bonds and to provide the interest thereon, had been deposited with the trustee.

The new company has more than a million gas and electric meters in service and its annual gross revenue is in excess of $56,000,000.

The companies which it succeeds serve a territory in New Jersey reaching from the Hudson to the Delaware with a population of some 2,600,000, including the cities of Newark, Jersey City, Paterson, Trenton, Camden, Elizabeth, Bayonne, Hoboken, Passaic, the Oranges, Perth Amboy, West Hoboken and New Brunswick.

The directors of the new company are: Walton Clark, Anthony R. Kuser, Lewis Lillie, Thomas N. McCarter, Uzal H. McCarter, Randal Morgan, Edmund W. Wakelee, Percy S. Young, Alfred L. Loomis and Landon K. Thorne.

Officers of the company include Thomas N. McCarter, president; Percy S. Young, vice-president in charge of finance. Edmund W. Wakelee, vice-president in charge of law; Dudley Farrand, vice-president in charge of industrial relations; John L. O'Toole, vice-president in charge of public relations; Farley Osgood, vice-president and general manager, electric department; Henry D. Whitcomb, vice-president and general manager, gas department; Charles M. Breder, secretary; T. Wilson Van Middlesworth, treasurer; William S. Barker, comptroller; Frank Bergen, general counsel; Edgar J. Allegaert, general auditor, electric department; and William H. Pettes, general auditor, gas department.

W. M. Henderson Becomes Distribution Superintendent of Los Angeles G. & E. Co.

Mr. W. M. Henderson has recently been made superintendent of gas distribution for Los Angeles Gas & Electric Corporation. Previous to this he was engineer of gas distribution, San Francisco district, for the Pacific Gas & Electric Company.

The greater portion of Mr. Henderson's 22 years connection with the gas industry has been in the service of the Pacific Gas & Electric Company, in capacities ranging through office boy, clerk, gas maker, draftsman, superintendent of gas works, assistant engineer gas department, to that held at the time of his going to the Los Angeles utility. In addition, he at one time was manager of the Fresno Gas Company and of the Colusa Gas & Electric Company.

A member of the Pacific Coast Gas Association and the American Gas Association, Mr. Henderson has been especially active in the affairs of the former organization, having served as secretary for four years. Prior to this he also has served as its librarian. Mr. Henderson was a member of the recently constituted joint committee investigating the B.t.u. content of gas on the Pacific coast.

In his new work with the Los Angeles corporation, Mr. Henderson succeeds Mr. W. J. Dorr, who has retired after nearly 35 years of continuous service with that organization.

Cities Service Buys Control of 5 Utility Companies in West

It was announced yesterday that control of five public utility companies had been acquired by Henry L. Doherty & Co. for the Cities Service Company. The properties, two of which serve Kansas City, Mo., Kansas City, Kan., and vicinities, and the others communities in Ohio, exceed $22,000,000 in valuation.

A majority interest in the common stock and a large block of the preferred of the Kansas City (Mo.) Gas Company and the Wyandotte County Gas Company of Kansas City, Kan., have been acquired. The two properties serve in these cities a population of 500,000.

Control of So. Carolina Gas & Electric Changes

New York, N. Y.—W. S. Barstow & Co. have completed negotiations for the purchase of the controlling common stock of the South Carolina Gas & Electric Co., serving Spartansburg, S. C., and adjacent territory.

Negotiations were made on behalf of the General Gas & Electric Corporation. During the last few months the company has made numerous other investments in Southern utility properties, principally the North Carolina Public Service Company and the Florida Public Service Company. Acquisition of the South Carolina Gas & Electric brings the total number of companies controlled by General Gas & Electric up to 47.

Gas Company Makes Report

Huntsville, Ala.—The largest amount of gas ever sold in its history, a gain of 8 per cent in the number of new customers secured and a larger volume of gas appliances sold, is the record of the Huntsville Gas Co.

Installations of additional mains and replacements is progressing rapidly, this work costing well up in the thousands of dollars, is designed to supply many new customers who have demanded gas service and also improves the company service in the entire eastern section of the city, being part of an extension program that the gas company has been carrying out during the past few months.

The company's plant where gas, coke and coal tar are manufactured is now complete in every detail, there being a duplicate for every piece of apparatus required in gas manufacture, thus guaranteeing as nearly as possible a steady and complete flow of gas throughout the city.

Doherty Club Comes to Fellow Workers' Aid

The Doherty Club, employees of the Public Service Company of Colorado, have "pitched in" and sent $1,500 to their fellow workers at Lorain, Ohio. The collection of the money was in charge of Herbert Tewksbury, secretary of the Doherty Men's Fraternity, and each man donated his bit with a smile, knowing that the various Doherty clubs throughout the country would do likewise, the aggregate making a tidy sum which would assist their fellow worker to establish his home, the former one being razed by a tornado.

Contracts Awarded

The Muskegon Traction and Lighting Company of Muskegon, Michigan, has placed an order with the Gas Machinery Company of Cleveland, Ohio, for automatic control to be installed on its water gas apparatus.

The equipment is to be complete with necessary brass hydraulic operating cylinders and auxiliary apparatus.

The City of Alexandria, Alexandria, Virginia, has placed contract with the Gas Machinery Company of Cleveland, Ohio, for a six-foot carburetted water gas apparatus.

This equipment will be complete with air and steam meters, pyrometer, explosion check valve and auxiliary apparatus.

The new water gas set will be located alongside of the water gas equipment formerly furnished by the Gas Machinery Company in Alexandria.

R. L. Nelson Resigns as Chief Engineer

Rufus L. Nelson, chief gas engineer with the Utica Gas & Electric Company, Utica, N. Y., since 1919, has resigned that position, effective immediately, to become vice-president and assistant general manager of the Foster Board Box Company, Utica. He will be succeeded by W. Leroy Williams, who will have full charge of the gas producing end of that company's business.

Mountain Gas Company Rates

Albany, N. Y.—The Public Service Commission has approved rates for gas service by the Mountain Gas Company in the village of Saranac Lake and towns of Harrietstown, North Elba and Saint Armand. Straight line rate of $3.15 per 1,000 cu. ft. changed to block rate of $3.15 for first 3,000 cu. ft.; $3 for next 7,000, and $2.15 for excess. Effective August 1, 1924.

Grand Island Gas Company Is Sold

Sheeton, Neb.—C. D. SeCheverall, of the Central Power Company, has acquired the controlling interest in the Grand Island Gas Company. Mr. Vieregg, the general manager of the gas company, stated that the stock acquired by Mr. SeCheverell was that held by nonresidents and that this brings the control back in the hands of local people.

There will be no change in the present management or method of operating or policies in the gas company.

The stock purchased has been held by the Miles estate, C. C. Hansen of Omaha, W. H. Ferguson of Lincoln and F. W. Ashton of Los Angeles. The price paid was said to have represented close to a value of $200,000 for the entire property.

Elmira Water, Light & Railroad Co. Makes Annual Report

The year 1923 was the best in the history of the company, both in point of gross and net earnings, and in general expansion of property and territory served.

Our new gas plant made good, and for the first time in its history, Elmira has a dependable gas supply, at a very reasonable rate. Early in 1923 we had some difficulty convincing our customers that the new gas was good. Through continued advertising we convinced the very large majority of gas users that excellent results could be obtained at moderate cost by using modern efficient appliances properly. A small percentage discontinued using gas, so the number of gas users decreased from 9,260 on January 1 to 8,940 on December 31. Due to the improved gas service, however, in 1921 we sold about 30 per cent more gas than in 1921 or 1922.

The practice of inviting our customers to become partners through the purchase of 7 per cent first preferred stock was continued. On July 1, 1922, there were 620 first preferred stockholders. On December 31, 1923, there were 1,255. In addition, there were several hundred paying for stock on our installment plan. Between these

dates we sold 7 per cent preferred stock to the amount of $400,000.

Financial Notes

The Pacific Gas & Electric Company reports a balance of $571,923 in May, after taxes, fixed charges and depreciation, compared with $514,000 in May, 1923. For five months the balance was $2,944,641, compared with $2,988,374 in the corresponding period of 1923.

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Continental Gas & Electric Corporation, which controls the Kansas City Power & Light Company, and several other public utilities in the West, show, for the twelve months ended May 31, gross $12,800,104, compared with $11,835,445 for the preceding twelve months. Net earnings were $5,606,537, compared with $4,952,043. Indications point to continued prosperity.

Gas Supply to Be Quadrupled

North Tonawanda, N. Y.—The Republic Light, Heat & Power Co. is spending $100,000 for the purpose of protecting its consumers, located in the Tonawandas, Kenmore, the Riverside section of Buffalo and intermediate points. The expenditure of this amount has been deemed essential to continue the supply of gas to such consumers in the event of an interruption to the present source of supply by reason of its discontinuance or by reason of breaks or other interruptions in the pipe line.

The new equipment will provide for the production of four times as much gas as was possible with the old equipment. The most important item of the new equpment will be a carburetted water gas machine which will have a producing capacity of 100,000 cubic feet per hour. Two new boilers, each having 150 horsepower, will be installed.

New Handbook

The Iowa Committee on Public Utility Information has prepared a new handbook entitled Iowa's Utility Service," which is available to anyone who may wish to make use of it. It contains information relating to the organization, operation and regulation of electric light and power, gas and electricity railway companies in Iowa. Due to the close relations which exist between these utility companies and the public the matter contained in the handbook should be of interest to all.

The publication of this handbook is a result of an effort to acquaint the public with some of the more intimate problems of public utility service.

Extra copies may be secured by applying to the Iowa Committee on Public Utility Information, 310 Crocker building, Des Moines, Ia.

New Contracts

The Illinois Power Company of Springfield, Ill., is making plans for the installation of its new plant at Springfield and has awarded the contract to the Western Gas Construction Company for furnishing a water gas set with automatic control and equipped with all the latest improvements in the gas industry. This machine will be equipped with the Howard automatic charger recently introduced by the Western Gas Construction Company.

The Northern Indiana Gas and Electric Company of Frankfort, Indiana, has placed its order for a large oil storage tank to be erected at its plant at Frankfort. This order was placed with the Western Gas Construction Company of Fort Wayne, Indiana.

Plan Giant Gas Plant in Troy, N. Y.

The Foundation Company has signed contracts with the Hudson Valley Coke and Products Corporation for the construction near Troy, N. Y., of a giant plant for the production of by-product coke gas. The plant will include an auxiliary water gas plant for the manufacture of blue water gas for heating ovens and carburetter water gas for the supply of six Hudson Valley cities. Total cost of the project will amount to $2,500,000, and the Foundation Company has $1,000,000 of the contract to modernize the Burden Iron Furnace, located near Troy, on the Hudson River.

The Foundation Company also has secured the contract from the Adirondack Power and Light Corporation for construction of 17 miles of 12-inch pipe from Troy to Schenectady, for the transportation of gas at high pressure. This contract will involve $350,000.

The Hudson Valley Coke Products Corporation represents the joint undertaking of the Burden Iron Company of Troy, Oliver-Snyder Steel Company and E. Arthur Tutein Company.

The new plant will supply the cities of Troy, Schenectady, Albany, Rensselaer, Cohoes and Watervliet with gas, replacing with by-product gas the present system of manufacturing gas from fuel oil.

House Heating With Gas

Boston, Mass.—A hearing was held before the Massachusetts Department of Public Utilities on July 8, on the petition of the Springfield Gas Light Company to establish a new rate for gas used for heating.

The Springfield Gas Light Company has always been keenly interested in the possibilities of space heating by gas and have conducted a great many experiments to ascertain what problems were likely to be met.

Realizing that the question is fundamentally one of rates, they entered a petition with the Department of Public Utilities asking that they be permitted to apply the following schedule for gas sold to central heating plants:

First 100 ft., 70c, less 10c, 60c net; next 400 ft., 14c, less 1c, 13c net; next 19,500 ft., 12c, less 1c, 11c net; next 75,000 ft., 11c, less 1c, 10c net; all over 95,000 ft., 10c, less 1c, 9c net.

The discounts shown above are for prompt payment.

It is the purpose of the Springfield Gas Light Company, if this petition is granted, to undertake house heating installations, measuring the gas through separate meters.

Such an arrangement will permit taking advantage in a large way of the "House Heating by Gas" prospect.